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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	:	Matsumoto, Kazuko) Group Art Unit : 1634
)
Appl. No.	:	09/771,439)
)
Filed	:	January 26, 2001)
)
For	:	METHOD FOR SEPARATING AND COLLECTING NUCLEIC ACIDS)
)
Examiner	:	Zitomer, Stephanie W.)

**REQUEST FOR CONTINUED EXAMINATION
AND AMENDMENT**

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

This is a Request for Continued Examination under 37 C.F.R. § 1.114 of U.S. Application No. 09/771,439. In response to the Office Action mailed March 21, 2002, Applicants respectfully request the Examiner to enter the following amendments and consider the following arguments.

IN THE CLAIMS:

Please amend Claim 1 as follows:

Claim 1. (Twice Amended) A method for separating and collecting nucleic acids, which comprises:

contacting a sample nucleic acid solution with a nucleic acid-immobilized substrate comprising a substrate and single-stranded nucleic acids having different nucleotide sequences, said single-stranded nucleic acids being each separately immobilized on the substrate, whereby immobilized portions of the immobilized single-stranded nucleic acids are provided on the nucleic acid-immobilized substrate;

Appl. No. : 09/771,439
Filed : January 26, 2001

hybridizing the immobilized single-stranded nucleic acids and single-stranded nucleic acids contained in the sample nucleic acid solution and complementary to the immobilized single-stranded nucleic acids to form hybridized nucleic acids; and

collecting the hybridized nucleic acids by a means selected from the group consisting of:

- (1) rubbing off the immobilized portions; and
- (2) shaving off the immobilized portions.

Please add the following new claims:

9. (New) The method according to claim 1, wherein the hybridized nucleic acids are collected by rubbing off the immobilized portions.

10. (New) The method according to claim 1, wherein the hybridized nucleic acids are collected by shaving off the immobilized portions.

REMARKS

Claim 1 has been amended. New claims 9 and 10 are added. Claims 1-10 are now pending in this application. Amendments are made to more clearly set forth the invention claimed. Accordingly, the amendments do not constitute the addition of new matter. Applicant respectfully requests the entry of the amendments and reconsideration of the application in view of the amendments and the following remarks.

The specific changes to amended claim 1 are shown on a separate set of pages attached hereto and entitled **VERSION WITH MARKINGS TO SHOW CHANGES MADE**, which follows the signature page of this Amendment. On this set of pages, insertions are underlined and deletions are struck through.

Rejection under 35 U.S.C. § 112, second paragraph

Claims 1-8 are rejected under 35 U.S.C. § 112, second paragraph as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Points (a) through (e) and (g) through (h) set forth in the Office Action of Paper No. 9 are believed to be overcome by Applicants' amendments.

Regarding point (f), the Examiner asserts that the recitations of (1) and (2) at the third indentation of claim 1 lack proper antecedent basis in the first two indented portions because the

Appl. No. : 09/771,439
Filed : January 26, 2001

second portion specifically requires "collecting the hybridized single-stranded nucleic acids without disassembling the nucleic acid-immobilized substrate" whereas the specification at page 18 discloses that "rubbing off" and "shaving off" remove a portion of the substrate.

In response, Applicants would like to clarify that although a small portion may be inevitably removed when the immobilized portions are rubbed off or shaved off, this removed portion is very small and negligible with respect to the remaining portion of the substrate. Therefore, removal of this small portion does not constitute "disassembling" of the substrate in view of the nature of the separation. Support for this interpretation is found in the present specification at the section beginning on the last paragraph of page 17 to page 18, line 11 which describes collection without disassembling the nucleic acid-immobilized substrate by the methods of

- (1) rubbing off the immobilized portions; and
- (2) shaving off the immobilized portions.

However, in order to expedite prosecution, Applicants have amended claim 1 to delete the phrase "without disassembling the nucleic acid immobilized substrate."

Reconsideration and withdrawal of this ground of rejection is respectfully requested in view of Applicants' amendments and arguments.

Rejection under 35 U.S.C. § 102(e)

Claims 1 and 3-8 are rejected under 35 U.S.C. § 102(e) as being anticipated by Mills, jr. et al. in view of Heller et al.

It is respectfully submitted that the claims as amended are not anticipated by either Mills, Jr. et al., Heller et al. or Mills, Jr. et al. in view of Heller et al. because neither Mills, Jr. et al. nor Heller et al. teach the means of rubbing off or shaving off the immobilized portions to collect the immobilized nucleic acids.

In view of Applicants amendments and arguments, reconsideration and withdrawal of this ground of rejection is respectfully requested.

Rejection under 35 U.S.C. § 103(a)

Claims 2-4 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Mills, Jr. et al. as applied to claims 1 and 3-8 above in view of Takenishi et al.

Appl. No. : 09/771,439
Filed : January 26, 2001

Mills Jr., et al. do not teach or suggest collection of the hybridized single-stranded nucleic acids by a means selected from the group consisting of rubbing off the immobilized portions and shaving off the immobilized portions as set forth in claim 1 as amended.

In contrast, Mills Jr., et al. teach the release of selected oligomers by local denaturation (col. 13, line 17), preferably by local heating (col. 13, line 33). The released oligomers are then collected by "collecting the solution in contact with the treated depot surfaces" (col. 15, lines 1-2). There is nothing in the Mills Jr. et al. reference that would motivate one of ordinary skill in the art to collect hybridized nucleic acids by the means set forth in claim 1 as amended.

Takenishi et al. is cited for their teaching on immobilization of nucleic acids on a substrate carrying a carbodiimide group. However, there is nothing in the Takenishi et al. reference that corrects the deficiencies of the primary reference.

In view of Applicant's amendments and arguments, it is respectfully requested that the Examiner reconsider and withdraw this ground of rejection.

CONCLUSION

In view of Applicants' amendments to the claims and the foregoing Remarks, it is respectfully submitted that the present application is in condition for allowance. Should the Examiner have any remaining concerns which might prevent the prompt allowance of the application, the Examiner is respectfully invited to contact the undersigned at the telephone number appearing below.

Please charge any additional fees, including any fees for additional extension of time, or credit overpayment to Deposit Account No. 11-1410.

Respectfully submitted,

KNOBBE, MARTENS, OLSON & BEAR, LLP

Dated: July 2, 2002

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